

WHY DO THEY DO THAT? LEARNED AND INHERITED BEHAVIORS

INSTRUCTIONS

Overview:

After small group and class discussions of the meaning of learned and inherited behaviors, students will investigate a particular animal to identify possible learned and inherited behaviors.

Objectives:

The student will:

- define the terms learned behavior and inherited behavior; and
- explain why behaviors might be learned or inherited.

Targeted Alaska Grade Level Expectations:

Science

[8] SC2.2 The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by explaining that most organisms utilize inherited and learned behaviors to meet the basic requirements of life.

Vocabulary:

learned behavior - a behavior that is a result of the experience of the individual organism

inherited (innate) behavior - a behavior that is "built in"

Materials:

- TEACHER INFORMATION SHEET: "Animal Behaviors"
- STUDENT WORKSHEET: "Investigate an Animal"

Activity Procedure:

1. Ask students to think of behaviors they or people around them do (giggle a lot, talk loudly, doodle, etc.). As a class, brainstorm a list of behaviors.

Critical Thinking Activity. Wait-Time Method. Ask students to pick a behavior from the list and think about why they or people they know might do that behavior. Explain that in order to give students time to think about their answers, you will not call on them for answers immediately. (NOTE: The wait time can be anywhere from 15 seconds to 5 minutes.)

2. Explain there are two ways to acquire behaviors: learned and inherited. Learned behaviors are those that come from our environment. For example, a student may say they are quiet because their parents like silence, or they like music because their sister is always playing music on the radio. Ask students if those behaviors would be different if they had been raised in a different home.
3. Inherited behaviors are ones that we are born with. Go back to the idea of enjoying music. Ask students if it's possible someone might like music not because it is played often in their house, but because a grandmother or great grandmother was a musician; perhaps being musical is something that is passed down through an inherited trait.
4. Revisit the behavior list. As a class, label each behavior as L (learned) or I (inherited). Many behaviors may have both L and I because it is difficult to determine what is learned and what is inherited.
5. Ask students why they might have inherited behaviors. Prompt them to think about animals and how their behavior helps them to survive.
6. Explain that some animals have adapted to their environment through behavior. Hibernation is an example of a behavior that helps animals survive. People commonly think of bears as hibernators, but bats hibernate too. Most insects disappear in winter, so the bats that eat them have to live off their own body fat until spring. Keeping warm and active would burn this fat too fast, so the bats hibernate and let their bodies get really cold.

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7. Ask students to name some learned animal behaviors. If students have pets at home, they have likely witnessed learned behavior. Most dogs are trained to do a variety of things like sit, stay or lie down. Cats, birds and other household pets may not be trained intentionally but they likely have learned behavior. For example, every time the can opener is used, the cat comes running (for food).
8. Since students cannot test their ideas about behavior, it is important to describe scientific means of doing so (e.g. controlled laboratory studies, twin studies, etc.)

Critical Thinking Activity. Think-Pair-Share. Divide students into pairs. Assign each pair a behavior from the TEACHER INFORMATION SHEET: "Animal Behavior." Several pairs may use the same behavior. Ask students to think about their assigned behavior on their own for a few minutes and ask whether they think it is a learned or inherited behavior and why. Then, ask them to share with their partner. Next, ask pairs to share with the entire class: did they agree or disagree? What were their reasons?

9. Discuss how it is sometimes difficult to distinguish between learned and inherited behavior, both in people and animals.
10. Distribute the STUDENT WORKSHEET: "Investigate an Animal." Go over the worksheet with students, then provide time for students to complete the worksheet individually or in pairs.

Extension Idea:

1. Ask students to observe animal behavior over a period of time. Students may take turns watching a class pet, pets at home or animals in their natural habitat. Students should share their observations with the class and discuss whether the observed behaviors were learned or inherited.

Answers:

STUDENT WORKSHEET: "Investigate an Animal"

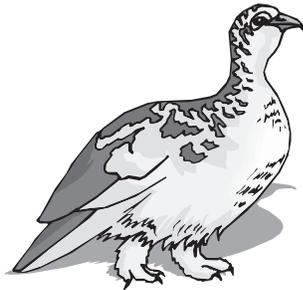
1. A. Behavior that is a result of the experience of the individual organism.
2. B. Behavior that is genetically determined (built in).
3. Answers will vary.
4. Answers will vary.
5. Answers will vary.
6. Answers will vary.

This lesson adapted with permission from Alaska Department of Fish and Wildlife's *Alaska's Wetlands and Wildlife* curriculum. (2007).

Orangutans build a platform-like nest at night out of branches that they use as a bed.

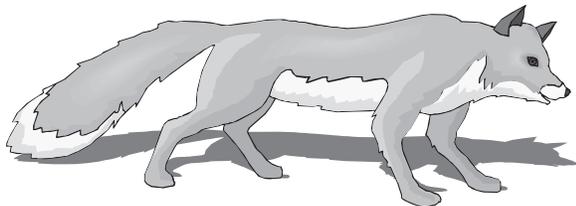
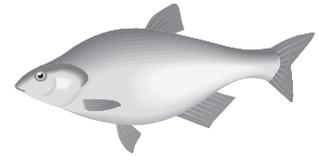


Puffins fly in wide circles over their nesting grounds. Birds leaving the colony join the circle and then break off when they fly out to sea. Returning birds join the circle and drop out near their own nests.



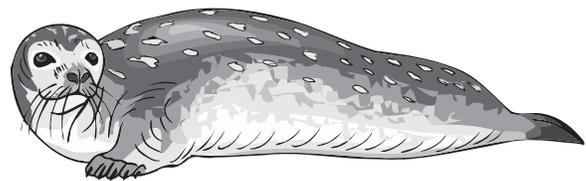
Ptarmigan are nomadic in winter, moving erratically from one sheltered slope or patch of food to another from November to March.

Some grayling migrate. They take advantage of different streams for spawning, growing up, summer feeding, and overwintering. Other grayling may complete their entire life in only a short section of a single stream or lake.



Many foxes venture out onto the sea ice during winter to feed on remains of seals killed by polar bears. Arctic foxes may move long distances over sea ice.

Male bearded seals vocalize during the spring breeding season using four types of calls: trills, ascents, sweeps and moans. A male's vocalizations are unique.



Because humans have a high capacity for learning, and because it is difficult to carry out controlled studies of human behavior, scientists know little about the effects of genes and environment on human behavior. Focusing on other animals is more scientifically rigorous. Pets provide a good starting point. Wild animals habituating to human-influenced environments provide another good set of examples of learned behaviors.

It will be important to help students find ways to distinguish inheritance from learning, as this is a difficult area to study by observation alone. Questions to include: Is the behavior performed from birth? Is the behavior similar to the parents or siblings? Or does the behavior begin in the absence of instruction or a "role model?"

NAME: _____
INVESTIGATE AN ANIMAL

STUDENT WORKSHEET
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Directions: Choose an animal and get approval from the teacher. Research your chosen animal by observation, websites and/or books. Answer the questions below.

1. What is **learned** behavior?
 - A. Behavior that is a result of the experience of the individual organism.
 - B. Behavior that is genetically determined (built in).
 - C. Behavior that always happens.
 - D. Behavior that only happens sometimes.

2. What is **inherited** behavior?
 - A. Behavior that is a result of the experience of the individual organism.
 - B. Behavior that is genetically determined (built in).
 - C. Behavior that always happens.
 - D. Behavior that only happens sometimes.

3. What animal are you investigating? _____

4. Name three **learned** behaviors of your animal and describe why you believe they are learned.
 - A. _____

 - B. _____

 - C. _____

5. Name three **inherited** behaviors of your animal and describe why you believe they are learned.
 - A. _____

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B. _____

C. _____

6. What book or website(s) did you get your information from?

